

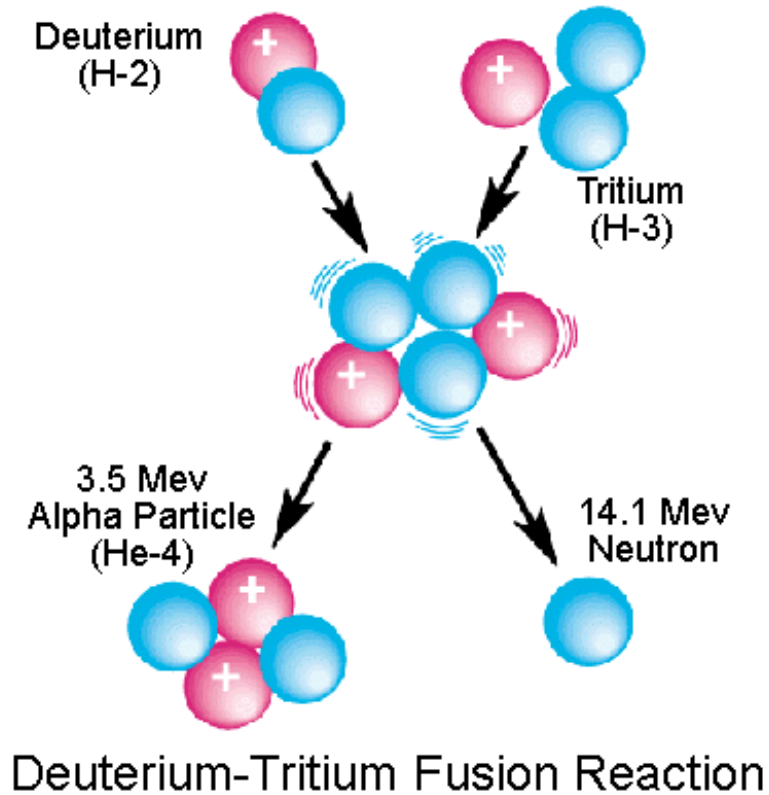


# FUSION INDUSTRY ASSOCIATION

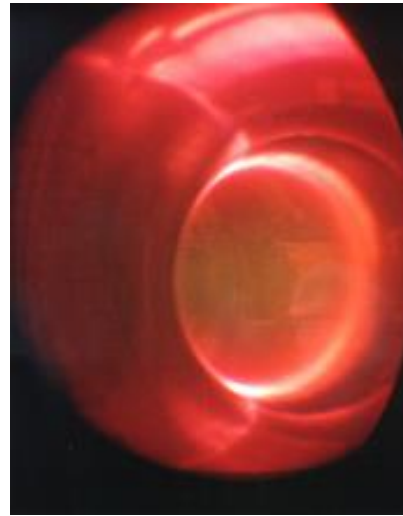
The Voice  
of a new  
Industry

The Fusion Industry Association is an international coalition of companies working to electrify the world with fusion - the unparalleled power of the stars. Energy from fusion will provide clean power for everyone that's safe, affordable, and limitless.

# What is fusion?



## Fusion Works



*TFTR, 510 million degrees C (34X hotter than center of the sun, Princeton (1995))*

## Energy Dense



*One Train car of fusion fuel could power the US electricity grid for a year*

# Why?



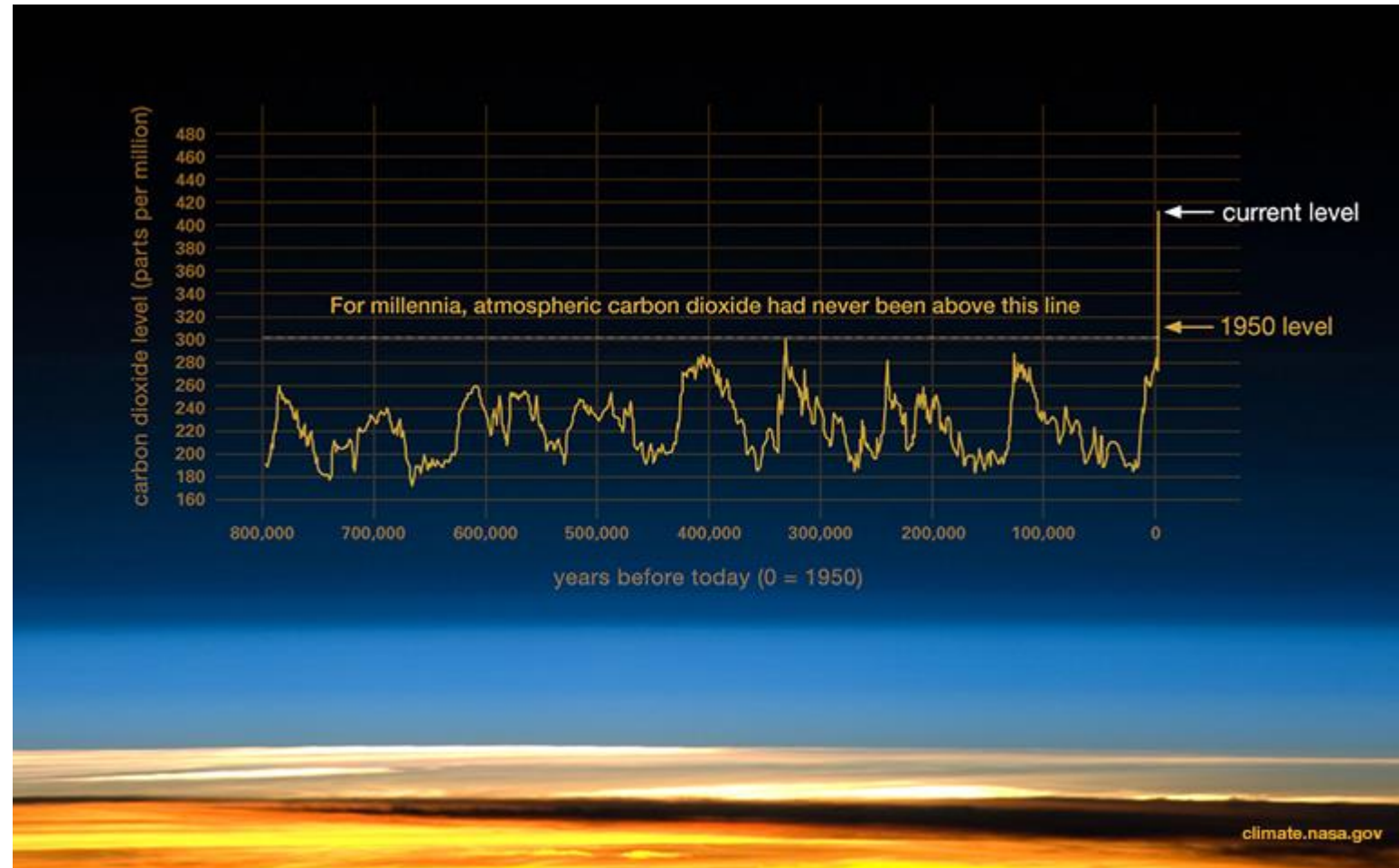
# Why Fusion?

*To solve our generation's  
biggest challenge:*

## ***The Climate Crisis***

Current clean energy technologies will prove insufficient to reduce carbon emissions enough to solve climate change.

**Fusion is a breakthrough energy source uniquely suited for rapid, widespread adoption to disrupt and displace fossil fuels around the world.**



# Why Fusion?

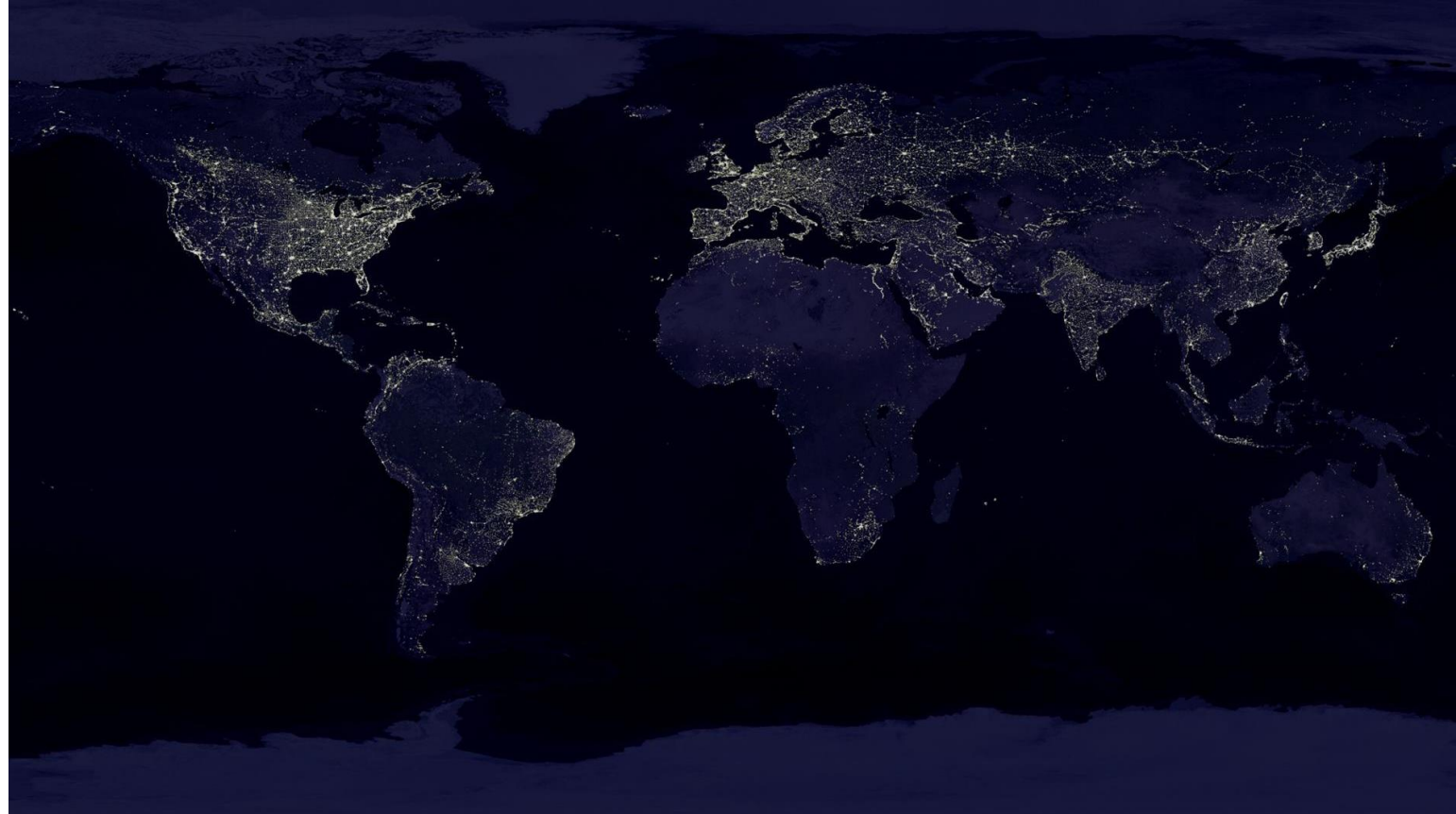
*To solve our species'  
biggest challenge:*

## ***Resource Scarcity***

Clean, safe, affordable, and inexhaustible fusion energy will power the economy of the future.

It will **raise living standards** and meet growing global energy demand without environmental sacrifices.

It will **break the geopolitics of energy**, so a country's destiny is not determined by the size of its hydrocarbon deposits.



# Why Now?

*Technology advances bring the day of Breakeven energy within sight*

## High Temperature Superconductors

New materials enable higher magnetic pressure and smaller, cheaper machines.

## High Speed Computing

Advances in computing power allow advanced modeling and the application of artificial intelligence to experiments.

## Greater Scientific Understand of Plasmas

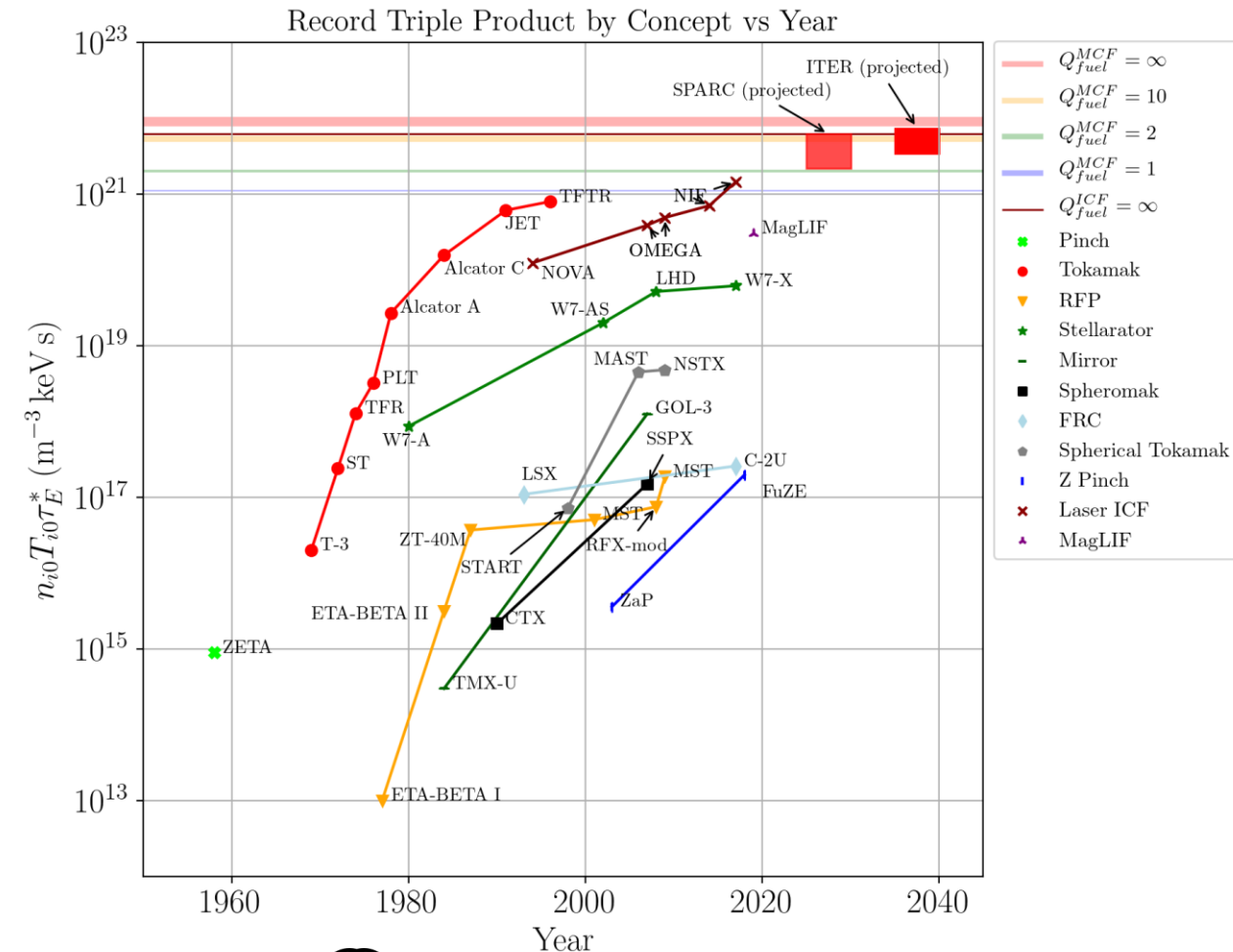
Significant progress in the physics of plasma confinement enables faster experimentation.

## Advanced Manufacturing

Advances in 3D printing allow quick and cheap production of metal in complex shape.

## Business Model Improvement

The application of the Silicon Valley-style venture capital has injected funding, urgency, and greater tolerance of risk.



Source:  Fusion Energy Base



# Why Now?

FUSION  
INDUSTRY  
ASSOCIATION

*Government, science, business, and investors are getting organized for accelerated fusion R&D*



project portfolio operations technology  sustainability investors about

press release

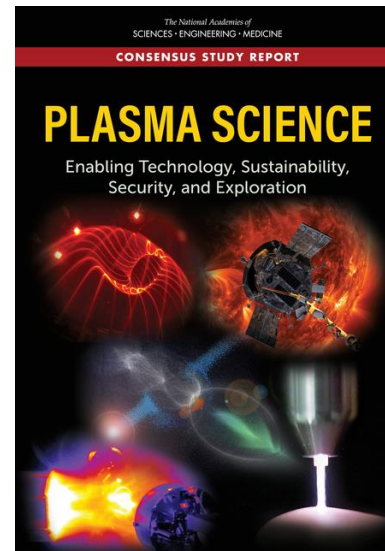
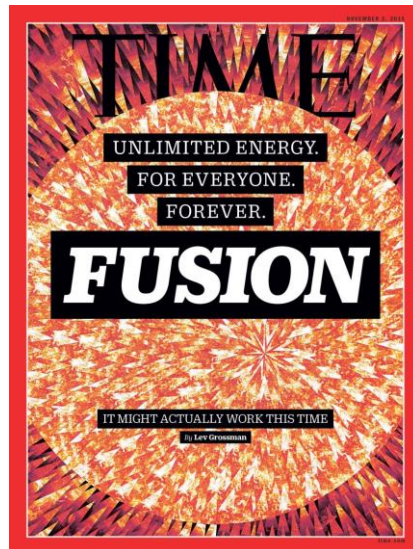
## Chevron Invests in Nuclear Fusion Start-up

Technology Ventures Team Identifies Zap Energy

Houston, Texas, August 12, 2020 — Chevron Corporation (NYSE: CVX) today announced a Series A investment in Zap Energy Inc., a Seattle-based start-up

### A Community Plan for Fusion Energy and Discovery Plasma Sciences

Report of the 2019–2020 American Physical Society Division of Plasma Physics Community Planning Process



*The New York Times* |  
**Compact Nuclear Fusion Reactor Is 'Very Likely to Work,' Studies Suggest**  
A series of research papers renews hope that the long-elusive goal of mimicking the way the sun produces energy might be achievable.  
By Henry Fountain  
Sept. 29, 2020

A Report of the Fusion Energy Sciences Advisory Committee  
**Powering the Future  
Fusion & Plasmas**

# Why an Association?

*Fusion energy will revolutionize the global energy system. It can solve the climate crisis and build energy abundance.*

- The Fusion Industry Association is **accelerating commercially viable fusion energy** by advocating for policies that support our 23 member companies as they develop commercial fusion power.
- The FIA is **building a movement** to tell the world should know how important clean, safe, affordable, and secure fusion will be to the future energy system. The FIA is educating key stakeholders in the private, public, and philanthropic sectors about the importance of tomorrow's fusion power economy.

*The FIA is expanding operations and accelerate efforts to support the transition to clean, safe, sustainable fusion energy.*



# Mission Statement

*The Fusion Industry Association is the voice of the growing fusion industry. It supports efforts to **accelerate commercially viable fusion** research and development. The Association promotes the interests of the fusion industry around the world by advocating for ways to commercialize fusion power on a time-scale that matters.*

# FIA Team



**Andrew Holland, Executive Director.** Located in Washington, DC, Holland has worked at the intersections of science, energy, policy, and politics for two decades. He's the author of the "[Fusion Power – A 10 Year Plan for American Energy Security](#)," first published in 2013, laying out a roadmap for American leadership in fusion. Since creating the FIA in 2018, he has brought together 22 of the leading fusion companies to jointly coordinate on areas of common interest. He holds a MSc. in International Strategy and Economics from the University of St. Andrews and currently resides in Alexandria, VA.



**Dr. Melanie Windridge, Director, UK & Communications,** Dr. Melanie Windridge is UK Director of the Fusion Industry Association, responsible for Communications. A physicist and communicator with expertise in energy and new technology, she holds a PhD in plasma physics/fusion energy from Imperial College London and is Communications Consultant for UK fusion company Tokamak Energy. She has over a decade of experience in promoting a better understanding of science through writing, public lectures, video and audio channels. Melanie is an award-winning science writer, author of [Star Chambers: The Race for Fusion Power](#) and [Aurora: In Search of the Northern Lights](#).



**Dr. Ryan Umstattd, Director, Tech-to-Market** served as the Acting Deputy Director for Commercialization at the Advanced Research Projects Agency-Energy (ARPA-E) where he was responsible for oversight of all Technology-to-Market activities. Prior to that, he was a Senior Commercialization Advisor where he helped prepare alternative fusion energy technologies for transition from government towards private sponsorship. Prior to joining ARPA-E, Ryan served in the Air Force as a scientist, professor, R&D program manager, and technology acquisition officer where he gained firsthand knowledge of many facets of delivering new technologies. Dr. Umstattd earned a PhD in Applied Science (Plasma Physics) at the University of California, Davis. He holds a B.S. in Physics from Santa Clara University.

# Membership

FUSION  
INDUSTRY  
ASSOCIATION



generalfusion®



TYPE ONE  
ENERGY



fuse



AGNI  
FUSION ENERGY



COMPACT  
FUSION SYSTEMS

EMC2



# Affiliate Members

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# How does the Fusion Industry Association advance fusion?

*Three strategic priorities for accelerating fusion energy*

# FIA Strategy

## **1. Partnering with Governments**

The private sector should have access to the scientific research that governments have pursued for decades. *Public-Private Partnerships* that include government support to private fusion companies can rapidly accelerate fusion development by driving private financial support.

## **2. Building a Fusion Movement**

The world should know how important clean, safe, affordable, and secure fusion will be to the future energy system. FIA is educating key stakeholders in the private, public, and philanthropic sectors about the importance of tomorrow's fusion power economy.

## **3. Ensuring Regulatory Certainty**

Fusion research, development, and deployment should be subject to appropriate, risk-informed regulation when experiments are built and sited.

# Ongoing Activities:

## 1. Partner with Governments

### Proposal: Department of Energy Voucher Program

*Create a new initiative in DoE that would allow private companies to apply for vouchers to spend at national labs.*

*This would enable companies to work directly with government scientists, a process that is currently cumbersome, difficult, and sometimes prohibited.*

STATUS:

#### IMPLEMENTED

- [INFUSE Program](#) More than \$3 million in awards given in two tranches through July 2020.

#### GROWING

- \$1m in FY2019, growing to \$4 million FY2020 and FY2021.

### Proposal: Government Cost-Share with Private Fusion

*Modeled on the successful [NASA COTS](#) and [DOE SMR](#) cost-share programs, this new program would directly reimburse private companies for the development of new US-based fusion capabilities over a 5-year period.*

*Government dollars would be leveraged with at least a 50% private sector cost share. Payments would be based on performance*

STATUS:

#### PASSED BY CONGRESS, Awaiting DoE Action

- Plan is a 5-year, \$450 million program
- Legislation was passed in the COVID response/Omnibus bill, signed December 27, 2020
- Building support from highest levels of DoE

# Ongoing Activities:

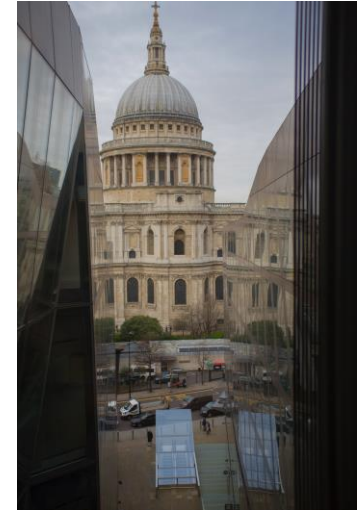
## *2. Building a Fusion Movement*

- **Fusion Investors Series**

- Worldwide series of events aimed at bringing fusion experts together with possible investors in an informal forum
- Purpose: share exciting progress in private fusion development, learn from investors and energize new advocates for fusion power
- Successful events thus far:
  - Palo Alto, February 2019
  - New York, June 2019
  - London, March 2020

- **Social and Earned Media**

- Growing presence throughout social media
- Sustained interest from traditional newspapers





## Ongoing Activities:

### *3. Ensure Regulatory Certainty*

- Working with the US Nuclear Regulatory Commission to inform regulatory plans
- Publishing and convening legal experts to determine the proper posture for regulatory action.
- Working with the IAEA to inform a global fusion regulatory structure.

## IGNITING THE FUSION REVOLUTION IN AMERICA

Leveraging the Lessons of the Atomic Age to Build a Regulatory Framework  
that Supports the Safe and Efficient Development of Fusion Energy Systems

**FUSION**  
INDUSTRY  
ASSOCIATION

June 2020

# Classes of Membership

[www.FusionIndustryAssociation.org](http://www.FusionIndustryAssociation.org)

## Membership

Full Membership in the Fusion Industry Association is open to **private companies striving to develop economically viable commercial fusion power** as soon as possible. The Membership is led by the **Fusion Advisory Committee**, composed of the companies at the “SUSTAIN” level of Membership.

## Affiliate Membership

Available to companies and individuals who want to participate in the FIA and be a part of the growing **fusion energy economy**.

## Educational and Research Partnerships

Open to universities, national labs, and scientific institutions who will partner with the fusion industry to advance fusion power.

## Individual, Corporate, and Philanthropic Support

Companies and charities can give tax-deductible support to the FIA, which is necessary to accelerate action in all lines of effort. Partner organizations receive preferred access to fusion members and insider information on capital raises. Only with greater resources can the FIA expand its reach.

*For more information, email Andrew Holland, Director of the FIA at: [AHolland@FusionIndustryAssociation.org](mailto:AHolland@FusionIndustryAssociation.org)*

# Legal Status

- *The Fusion Industry Association is affiliated with the American Security Project, a registered 501(c)3 educational nonprofit, and the American Security Action Fund, a registered 501(c)4 social welfare organization that can lobby the government in favor of policies, appropriations, or legislation. The Association does not intervene in political campaigns nor does it support candidates for public office.*
- *Donations to the 501(c)3 are exempt from American taxes, but will not be used to support lobbying expenses. Donations to the 501(c)4 are not exempt from taxes.*